

CLAIMS

1. A method in a transmitter for data collision avoidance in an uncoordinated frequency hopping communication system comprising:

5 determining that a first data set to be sent to a first device and a second data set to be sent to a second device are scheduled to be transmitted simultaneously on a first frequency;

transmitting one of the first data set and the second data set on the first frequency;

10 delaying transmission of an other of the first data set and the second data set; and

transmitting the other of the first data set and the second data set on a second frequency.

2. The method according to claim 1, delaying transmission of the second data set temporally to the next scheduled transmission time.

3. The method according to claim 2, wherein the first frequency is one of a plurality of frequencies of a first frequency hopping pattern.

20 4. The method according to claim 2, wherein the second frequency is one of a plurality of frequencies of a second frequency hopping pattern.

5. The method according to claim 3, wherein the second frequency is one of a plurality of frequencies of a second frequency hopping pattern.

25 6. The method according to claim 5, further comprising transmitting the second data set on a frequency which is sequentially next in a frequency hop-set.

7. The method according to claim 3, further comprising, prior to, transmitting one of the first data set and the second data set, randomly selecting either the first data set or the second data set to be transmitted first.

5 8. The method according to claim 7, wherein transmitting one of the first data set and the second data set further comprises transmitting the randomly selected data set of the first or second data set during a scheduled transmission frame and on a scheduled transmission frequency, and

10 wherein delaying further comprises delaying the data set of the first or second data set not randomly selected to the next scheduled transmission frame.

9. The method according to claim 8, wherein transmitting the other of the first data set and the second data set further comprises transmitting the data set not
15 randomly selected at the next scheduled frame and on the next scheduled transmission frequency.

10. The method according to claim 9, further comprising assigning a first sub-channel code to the first device.

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11. The method according to claim 10, further comprising inserting the sub-channel code, that correlates to the first sub-channel code assigned to the first device, into the first data set to be transmitted.

25 12. The method according to claim 11, further comprising assigning a second sub-channel code to the second device.

13. The method according to claim 12, further comprising inserting the second sub-channel code, that correlates to the second sub-channel code assigned to the second
30 device into the second data set to be transmitted to the second device.

14. A method in a transmitter for data collision avoidance in an uncoordinated frequency hopping communication system comprising:

determining that a first data set to be sent to a first device and a second data set to be sent to a second device are scheduled to be transmitted simultaneously on a first frequency;

transmitting the first data set on the first frequency; and
discarding the second data set.

15. A method in a transmitter for data collision avoidance in an uncoordinated frequency hopping communication system comprising:

receiving, from a base station, a channel frequency set and hopping patterns of all wireless devices in the frequency hopping communication system using a hop-set;

determining when a channel collision will occur using the received channel frequency set and the hopping patterns;

transmitting a first data set on the first frequency; and
delaying transmission of a second data set.

16. A method in a wireless communication device to eliminate data collisions in an uncoordinated frequency hopping communication system comprising:

receiving a first data set on the first frequency hopping frequency;
determining that the first data set was not intended to be received by the device;

delaying transmission of a second data set; and

transmitting the second data set on a second frequency of a frequency hopping pattern.

17. The method according to claim 16, wherein the step of determining that the first data set was not intended to be received by the device comprises:

comparing a first sub-channel code in said first data set to a sub-channel code assigned to the wireless communication device.

determining that the first sub-channel code in said first data set does not match the sub-channel code assigned to the wireless communication device.

18. The method according to claim 17, wherein the second data set is
5 transmitted on a second frequency which is sequentially next in a frequency hopping pattern.

19. A method in a wireless communication device to eliminate data collisions wherein transmissions are made in an uncoordinated frequency hopping scheme such that
10 the downlink channels and uplink channels are assigned in pairs, and wherein the uplink channel assignment follows the downlink assignment and uplink channel collisions occur following downlink channel collisions, said method comprising:

determining that a downlink channel collision has occurred;
refraining from transmitting an uplink data set during the scheduled uplink
15 period; and
transmitting the uplink data set on the next scheduled uplink period
thereby avoiding an uplink channel collision.

20. The method according to claim 19, wherein determining that a downlink
20 channel collision has occurred further comprises determining that a downlink data set received by the device was not intended to be received by the device.

21. The method according to claim 20, wherein determining that a downlink
channel collision has occurred further comprises determining that a sub-channel code
25 included in the downlink data set received by the device does not match an assigned sub-channel code.

22. The method according to claim 21, wherein determining that a downlink
channel collision has occurred further comprises determining that a priority code does not
30 match an assigned priority code.

23. A method in a transmitter for data collision avoidance in a frequency hopping communication system comprising:

determining that a first data set to be sent to a first device and a second data set to be sent to a second device are scheduled to be transmitted simultaneously on a

5 first uncoordinated frequency hopping frequency;

transmitting the first data set on the first frequency hopping frequency;

delaying transmission of the second data set;

transmitting the second data set on a second frequency hopping frequency;

10 transmitting a third data set to a third device on a first coordinated frequency hopping frequency.

24. A base station in a wireless communication system comprising:

a message reception module, wherein messages received by the message reception module are to be transmitted to one of a plurality of communication devices;

15 a frequency hop pattern generation module;

a channel collision detection module that detects when received messages are scheduled to be transmitted on the same frequency at the same time;

a message scheduling module; and

a message transmitter.

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25. A mobile station adapted to communicate in a frequency hopping wireless communication system comprising:

a receiver module, wherein messages are received on a frequency of an uncoordinated frequency hopping hop-set;

25 a channel collision detection module that detects when received messages are not intended to be received by the mobile station;

a transmission scheduling module; and

a transmitter.